

Appl. No. 10/765,531

Attorney Docket No.: N1085-00225 (TSMC2003-0656)

Amdt. dated 06/25/2007

N1280-00235

Response to Office Action of 03/23/2007

Amendments to the Claims:

This listing of pending claims is as follows:

- 1 1. (Withdrawn) A method for processing one or more oblique features on a mask or
2 reticle substrate, the method comprising:
3 aligning the mask or reticle substrate with a predetermined reference system;
4 determining an offset angle of a feature to be processed on the mask or reticle
5 substrate with regard to either a first reference direction or a second reference direction
6 perpendicular to the first reference direction of the predetermined reference system;
7 rotating the mask or reticle substrate in a predetermined direction by the offset
8 angle; and
9 processing the feature on the mask or reticle substrate according to the
10 predetermined reference system wherein the feature is processed in either the
11 horizontal or vertical reference direction thereof.
- 1 2. (Withdrawn) The method of claim 1 the aligning further includes positioning the
2 mask or reticle substrate on a mask holder, the mask holder being on a mask stage of a
3 mask processing tool.
- 1 3. (Withdrawn) The method of claim 2 wherein the predetermined reference system
2 is defined by moving directions of the mask stage.
- 1 4. (Withdrawn) The method of claim 2 wherein the rotating further includes rotating
2 the aligned mask holder by the offset angle.
- 1 5. (Withdrawn) The method of claim 2 wherein the rotating further includes using
2 one or more stoppers on the mask stage for stopping the mask holder.
- 1 6. (Withdrawn) The method of claim 1 wherein the processing further includes
2 forming or repairing the feature on the mask or reticle substrate.

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1 7. (Withdrawn) The method of claim 1 wherein the processing further includes
2 inspecting or verifying the feature on the mask or reticle substrate.

1 8. (Withdrawn) The method of claim 1 wherein the offset angle is about 45 degrees
2 from either the first or second reference direction.

1 9. (Currently Amended) A mask processing system comprising:

2 means for receiving a mask or reticle substrate according to a predetermined
3 reference system;

4 means for determining an offset angle of a feature to be processed on the mask
5 or reticle substrate with regard to either a horizontal or vertical reference direction of the
6 predetermined reference system;

7 means for rotating the mask or reticle substrate in a predetermined direction by
8 the offset angle; and

9 means for processing the feature on the mask or reticle substrate according to
10 the predetermined reference system wherein the feature is processed in either the
11 horizontal or vertical reference direction thereof of the predetermined reference system
12 and at the offset angle with respect to an edge of the mask or reticle substrate.

13 wherein the means for processing the feature comprise means for writing a mask
14 pattern.

1 10. (Currently Amended) The processing system of claim 9, wherein the means for
2 processing the feature further comprise ~~is a mask writing or repairing~~ means tool.

1 11. (Currently Amended) The processing system of claim 9, wherein the mask
2 processing system comprises ~~is a metrology tool,~~ a verification tool[,] or an inspection
3 tool.

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1 12. (Original) The processing system of claim 9 wherein the means for rotating
2 further includes a rotatable mask holder.

1 13. (Original) The processing system of claim 9 wherein the means for receiving
2 further includes a mask stage whose moving directions define the predetermined
3 reference system.

1 14. (Original) The processing system of claim 9 further comprising a mask or reticle
2 substrate orientation monitoring subsystem for monitoring the position of the mask or
3 reticle substrate.

1 15. (Original) The processing system of claim 9 wherein the offset angle is about 45
2 degrees with regard to either the horizontal or vertical reference direction.

1 16. (Currently Amended) A method for processing one or more oblique features on a
2 mask or reticle substrate, the method comprising:
3 positioning the mask or reticle substrate on a rotatable mask holder on a mask
4 stage;
5 aligning the mask or reticle substrate with a predetermined reference system
6 defined by moving directions of the mask stage so that at least one side of the mask or
7 reticle substrate is in a horizontal reference direction of the reference system;
8 determining a first offset angle of a first feature to be processed on the mask or
9 reticle substrate with regard to either the horizontal or vertical reference direction of the
10 predetermined reference system;
11 rotating the mask holder in a predetermined direction by the first offset angle; and
12 processing the first feature on the mask or reticle substrate according to the
13 predetermined reference system wherein the first feature is processed in either the
14 horizontal or vertical reference direction thereof of the predetermined reference system

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- 15 and the feature formed at an oblique angle with respect to the side of the mask or reticle
16 substrate,
17 wherein the processing comprises writing a mask pattern.

1 17. (Original) The method of claim 16 further comprising:
2 determining a second offset angle of a second feature to be processed on the
3 mask or reticle substrate with regard to either the horizontal or vertical reference
4 direction of the predetermined reference system;
5 rotating the mask holder to a desired orientation based on the first and second
6 offset angles; and
7 processing the feature on the mask or reticle substrate according to the
8 predetermined reference system wherein the second feature is processed in either the
9 horizontal or vertical reference direction thereof.

1 18. (Original) The method of claim 16 further comprising monitoring the position of
2 the mask or reticle substrate according to the predetermined reference system.

1 19. (Original) The method of claim 16 wherein the rotating further includes rotating
2 the mask holder by using one or more mechanical stoppers on the mask stage.

1 20. (Original) The method of claim 16 wherein the rotating further includes rotating
2 the mask holder by using an optical position monitoring subsystem.

1 21. (Currently Amended) A mask processing system comprising:
2 a mask stage for aligning a mask or reticle substrate wherein one side of the
3 mask or reticle substrate is parallel to a horizontal reference direction of a
4 predetermined reference system;
5 a processing module for determining an offset angle of a feature to be created
6 processed on the mask or reticle substrate with regard to either the horizontal or vertical
7 reference direction;

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8 a mask holder for rotating the mask or reticle substrate in a predetermined
9 direction by the offset angle;

10 a mask or reticle substrate orientation monitoring subsystem for monitoring the
11 position of the mask or reticle substrate; and

12 a mask processing module utilizing the predetermined reference system for
13 processing creating the feature on the mask or reticle substrate wherein the feature is
14 processed created in either the horizontal or vertical reference direction of the
15 predetermined reference system and at an oblique angle with respect to the one side of
16 the mask or reticle substrate.

17 wherein the mask processing module is a mask writing tool.

1 22. (Currently Amended) The processing system of claim 21 wherein the mask
2 processing module ~~[[is]]~~ further comprises a mask ~~writing or repairing~~ tool.

1 23. (Currently Amended) The processing system of claim 24 wherein the mask
2 processing module ~~is a metrology tool,~~ further comprises a verification tool~~[[.]]~~ or an
3 inspection tool.

1 24. (Original) The processing system of claim 21 wherein the mask stage further
2 includes one or more orientation monitoring subsystem for aligning the mask stage
3 according to the horizontal or vertical reference direction.

1 25. (Original) The processing system of claim 21 wherein the offset angle is about 45
2 degrees with regard to either the horizontal or vertical reference direction.